

A NEW SPECIES OF *PHYTALMIA* (DIPTERA: TEPHRITIDAE) FROM PAPUA NEW GUINEA

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Abstract

Phytalmia robertsi sp.n. is described from Papua New Guinea and its relationship with other species within the genus discussed.

Introduction

The genus *Phytalmia* Gerstaecker was revised by McAlpine and Schneider (1978) who recorded six species in the genus, five from New Guinea and one from the Iron Range district of Cape York Peninsula, Australia. Males of *Phytalmia* are remarkable for their cheek processes which give them the name 'antler flies'. The behaviour and function of the cheek processes of *Phytalmia* spp. have been studied by Moulds (1977) and Dodson (1989).

The specimens of the species described below were discovered in the National Forest Insect Collection, then located at Bulolo, by Dr Gary Dodson during his studies of *Phytalmia* in Papua New Guinea.

Abbreviations: AM, Australian Museum, Sydney; NFIC, National Forest Insect Collection, Lae; UQIC, University of Queensland Insect Collection, Brisbane; L.A., logging area; M. Prov., Morobe Province.

Phytalmia Gerstaecker

Phytalmia Gerstaecker, 1860: 169. Type species *Phytalmia cervicornis* Gerstaecker, 1860 (des. Enderlein, 1936: 229).

Phytalmia robertsi sp.n. (Figs 1-3)

Types - PAPUA NEW GUINEA: *holotype* ♂ (AM), Robbies Crk, Bulolo, M. Prov., 26.vii.1979, H. Ivagai; *paratypes* : 1♂, 4♀♀ (NFIC), same data as holotype except 2, 8.viii.1979; 3♂♂, 1♀ (NFIC), 1♂ (UQIC), same locality, 9,15.viii.1979; H. Roberts; 4♀♀ (NFIC), 1♀ (UQIC), Robbies Crk, Stony L.A., Bulolo, M.Prov., 29,30.vi, 3.vii.1979, H. Roberts; 2♀♀ (AM), same locality, 2, 5.vii.1979, H. Ivagai; 1♀ (NFIC), Stony L.A., Bulolo, M. Prov., 3.viii.1979, H. Ivagai; 1♂ (AM), Waramuri Crk, Bulolo, M. Prov., 25.vi.1980, H. Ivagai; 1♀ (NFIC), Waramuri, Bulolo, M. Prov., 10.vii.1980, H. Ivagai; 1♀ (UQIC), Lower Manki L.A., Bulolo, M. Prov., 17.iv.1980, H. Roberts; 1♂, 1♀ (NFIC), 1♂ (UQIC), Naru L.A., Gogol, Madang Prov., 28,29.v.1984, H. Roberts.

Male (Fig. 1)

Head - Occiput mainly brown to very dark brown with irregular yellowish patches especially medially and behind base of cheek process; posterior margin bluntly produced over neck region with median dorsal depression and row of close erect setulae. Eye deeply emarginate posteriorly around anterior

base of cheek process. Frons with dark brown of occiput continuous broadly over ocellar region and extending forwards over posterior fronto-orbital region; second dark brown crescent-shaped patch anteriorly; frons otherwise yellowish-brown; usually two fine posterior fronto-orbital bristles, much shorter than anterior incurved one. Ocellar bristles very fine and short. Antenna mid brown with segment 3 usually lighter brown than segments 1 and 2; arista plumose, with ventral hairs shorter and fewer than dorsal hairs. Parafacial, except ventral dark brown patch, and upper part of mesofacial pale fulvous; epistomal margin of face produced into broad lip-like dark reddish brown process usually with small anteromedian pale patch. Cheek pale fulvous; cheek bristle arising from conspicuous narrow projection. Cheek process (Fig. 2) flattened, narrow basally, broad distally, divided into two rounded branches; colour variable but usually predominantly brownish-purple with reddish-black markings. Buccal cavity pale fulvous except brownish-purple on ventral surface of epistomal projection. Palpus broadly lanceolate, brownish-purple.

Thorax - Predominantly mid to dark brown with variable dull yellowish suffusions; scutellum pale yellowish. Pronotal lobes rounded, separated by a low ridge medially. Mesonotum with an anterior median tubercle just posterior to ridge separating pronotal lobes. Anterior notopleural bristle much finer and shorter than posterior one. Legs with coxae dark brown, fore coxa elongate, at least half length of fore femur; femora brown except for pale yellowish bases; fore femur thickest in middle of length with four to six posteroventral black spines; tibiae mid brown although fore tibia often yellowish brown; mid tibiae with three black apical ventral spines, the middle one at least twice length of other two; hind tibia with one short black anteroventral spine apically. Tarsi yellowish; hind tarsus with one or two short dark ventral spines near base. Wing with costal, marginal and submarginal cells brown; subcostal cell dark brown; other cells variably lightly tinged with brown. Haltere pale yellow.

Abdomen - Preabdomen dark brown except yellowish brown dorsal patch behind middle of petiolate basal segment and mid brown posterior areas of tergites 3 and 4. Combined tergite 1 and 2 about as long as tergites 3,4 and 5 together, each finely setose with a long fine bristle laterally and mid dorsolaterally on the posterior margin. Sternite 1 quite short, partially separated from the very long, narrow sparsely setose sternite 2; sternites 3 and 4 long, narrow, setose; sternite 5 much larger, widening posteriorly, densely short setose; sternites 2 to 4 with one or two long, fine posterolateral bristles; sternite 5 with two or three mid lateral and two posterior bristles on each side. Postabdomen (Fig. 3) tawny brown; cercus yellow. Tergite 6 absent. Sternites 6 and 7 separated on right side, fused ventrally and connected to dorsolateral sternite 8 on left side. Outer surstylus not much longer than wide, with lower edge slightly emarginate and anterior margin medially curved. Inner surstylus about one third width and shorter than outer surstylus with two anteroventrally directed black teeth on distal outer edge. Lateral



Fig. 1. *P. robertsi* ♂. Scale line = 2.5 mm.

arms of aedeagal apodeme articulating with anterior curve of U-shaped genital ring; arms of genital ring articulating with anterior inner edge of epandrium behind. Stipe of aedeagus long slender bare; glans of aedeagus bifurcate distally, one arm bearing the gonopore, the other bearing subterminal tuft of microtrichia.

Female

Description as for male except in the following points.

Eye much less deeply emarginate posteriorly. Lower part of face patchy dark reddish-brown and pale fulvous. Epistomal margin less markedly produced. Cheek process absent and cheek bristle not arising from a tubercle or projection. Fore femur uniformly brown, not pale basally, not markedly thicker at mid length and without black spines. Fore tibia and tarsus and distal segments of mid and hind tarsi brown. Tergite 6 well developed; combined lengths of tergites 5 and 6 about same as length of tergite 5 of males. Sternite 5 shorter than in male; sternite 6 wider than 5; bristles and setae of segment 6 as for segment 5; fused sternite and tergite 7 mid brown, setose, with two dorsal and two ventral long fine bristles posteriorly.

Dimensions

Total length: ♂ 11.5-13.7mm; ♀ 9.7-14.5mm. Length of thorax: ♂ 3.4-4.2mm; ♀ 2.6-4.0mm. Length of wing: ♂ 9.0-10.3mm; ♀ 7.3-9.8mm. Length of ♂ cheek process: 2.9-3.6mm.

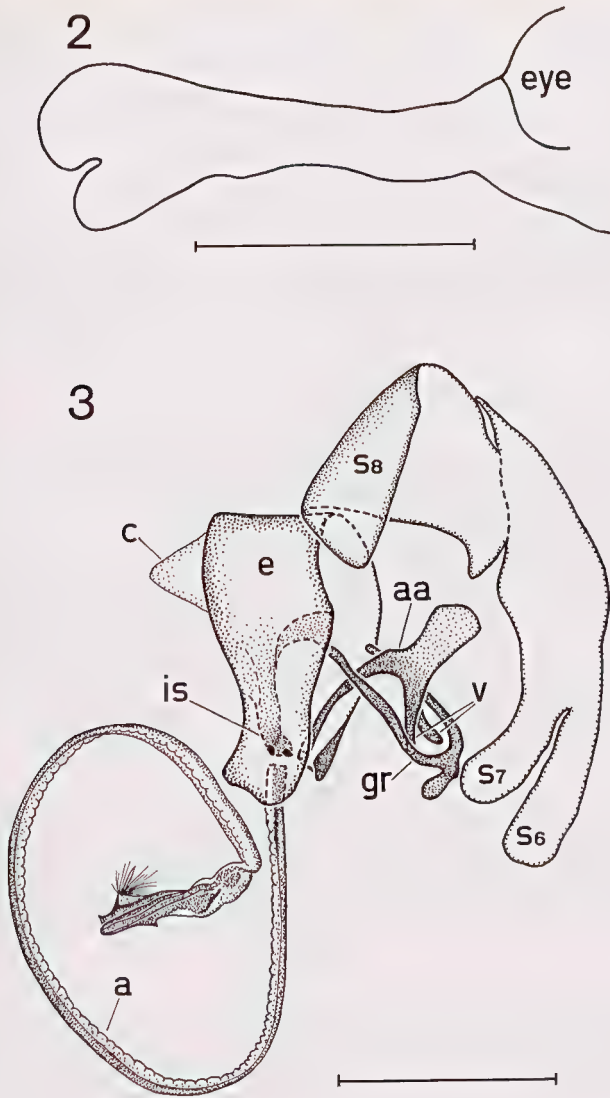
Etymology

The species is named in honour of Dr Hywel Roberts for his help in collecting this and many other interesting species of flies during the years he spent in Papua New Guinea.

Discussion

This species is most closely related to *P. megalotis* Gerstaecker. The males can easily be distinguished by the difference in the form of the cheek process (not bilobed distally in *P. megalotis*) and by the pale coloured base of the fore femur of *P. robertsi* (fore femur entirely brown in *P. megalotis*). The females are more difficult to distinguish, the main consistent difference being the anterior brown band on the wing in *P. robertsi* while *P. megalotis* has just the subcostal cell brown and an indistinct apical brown patch. In the key to species given by McAlpine and Schneider (1978: 164), *P. robertsi* would go to the second half of couplet 2 with *P. mouldsi* McAlpine and Schneider and *P. megalotis* except that the male cheek process is bilobed distally. It would then be separated from *P. megalotis* by the characters given above.

All specimens but one were taken in montane areas around Bulolo. The single male specimen taken from Gogol in the Madang Province is clearly conspecific despite the generally much lower altitude of the area. Nothing is known of its behaviour and biology except for a little information given on the data labels. Thirteen specimens were taken on or under leaves of bananas



Figs 2-3. *P. robertsi* ♂ (2) left cheek process, posterior view. Scale line = 2.0 mm. (3) postabdomen, right lateral view with sternites 6,7 and 8 displaced and bristles not shown.

a, aedeagus; aa, aedeagal apodeme; c, cercus; e, epandrium; gr, genital ring; is, inner surstylus; s, sternite; v, vanes of aedeagal apodeme. Scale line = 0.5 mm.

(*Musa* sp.), six on leaves or the stem of *Dysoxylum* sp. and one on *Dysoxylum gaudichaudianum*, the only known host for *P. mouldsi*. The remaining specimens were simply recorded from leaves of shrubs, ground vegetation or on a log. It is of significance that specimens were taken in logging areas where an abundance of oviposition sites would be available, assuming that females of this species, like at least some other species of the genus, deposit their eggs under the bark of fallen trees.

Acknowledgements

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